

# Purchase Order Receipt Listing

Tuesday, December 06, 2016 1:36:25 PM

All amounts are calculated in domestic currency.

All Vendors PO ID PO34484 All Receipt Dates All Line Item Types  
All Item ID/GL/WOs All Rec. Employees All Currencies  
Grouped by Vendor ID

Purchase Order ID/ Curr Type	Line Nbr/ Insp Req	Project ID	Reference/ Description/ Cert Std	PO U/M / Stock U/M	Required Date Required Qty	Recv Date/ Recv Emp	Recv Qty (PO U/M)	Cost Per Unit/ Recv Value	Inspected Qty/ Rejected Qty (PO U/M)	MRB Qty/ MRB Reject Qty	Book Amt
<b>Vendor ID \ Vendor Name</b>											
PO34484	1		VU-TW/M001 TW Metals								
USD	No		M304TR0.750W.049 f	f	12/8/2016	12/6/2016	60.0000		0.0000	0	\$0.00
			304 RD Tube .750 x .049W	f	60.0000	PLOU01			0.0000	0	
			m136323								
	2		M4130NT0.500W.08 f	f	12/8/2016	12/6/2016	19.8330		0.0000	0	\$0.00
	No		4130 RD tube .500 x .083W	f	20.0000	PLOU01			0.0000	0	
			m136323								
	3		M4130NT0.750W.04 f	f	12/8/2016	12/6/2016	47.8330		0.0000	0	\$0.00
	No		4130 RD Tube .750 x.049W	f	40.0000	PLOU01			0.0000	0	
			m136323								
	5		M6061T6T0.3125W.0 f	f	12/8/2016	12/6/2016	36.0000		0.0000	0	\$0.00
	No		ALUM TUBE .3125 x .058w	f	40.0000	PLOU01			0.0000	0	
			m136323								
	7		M6061T6T0.500W.05 f	f	12/8/2016	12/6/2016	120.0000		0.0000	0	\$0.00
	No		6061-T6 RD Tube .500 x.058W	f	120.0000	PLOU01			0.0000	0	
			m136323								
	8		M6061T6T0.625W.06 f	f	12/8/2016	12/6/2016	36.0000		0.0000	0	\$0.00
	No		6061-T6 RD Tube .625 x.065W	f	40.0000	PLOU01			0.0000	0	
			m136323								

Purchase Order ID/ Curr Type	Line Nbr/ Insp Req	Project ID	Reference/ Description/ Cert Std	PO U/M / Stock U/M	Required Date Required Qty	Recv Date/ Recv Emp	Recv Qty (PO U/M)	Cost Per Unit/ Recv Value	Inspected Qty/ Rejected Qty (PO U/M)	MRB Qty/ MRB Reject Qty	Book Amt
<div> <div>Total Received Quantity:</div> <div>319.6660</div> </div> <div> <div>Total Qty to Inspect (PO U/M):</div> <div>0.0000</div> </div> <div> <div>Total Reject Quantity:</div> <div>0.0000</div> </div> <div> <div>Total Receipt Value:</div> <div>\$0.00</div> </div> <div> <div>Total Balance Due Quantity:</div> <div>0.0000</div> </div>											



O'Neal High-Performance Metals Group



**Packing Slip**

ORDER NO.: 60620876

FROM: CRAN

PAGE 1

CUST NUMBER: 1203820  
SOLD TO:  
DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY ON  
CANADA

NET WGT:

65.023 REQ.DATE: 12/08/16 CONFIRMED  
SHIP TO:  
DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY ON  
ONTARIO CANADA

CN K6A 1K7

CN K6A 1K7

SALESPERSON: DONNA SMALLEY  
TERMS: NET 30 DAYS  
F.O.B.: SHIPPING POINT  
CUST ORD NO.: PO34484

SHIP BY: 12/02/16  
VIA: COMMON CARRIER  
FREIGHT: PREPAID  
RELEASE NO.:  
RECEIVING PHONE:

LINE ITEM DESCRIPTION

0001 32821 SMLSCD 4130 6736 1/2 X .083 WA ✓ WIDTH LENGTH 17/24 FT

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT
	20.000 FT	19.833 FT	19.833 FT	7.330

PCS 1

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: 9A991.d Export License: NLR Expiration Date: 0/00/00  
PO:49323019 HT:234812 PC: 1 CUSTOMER QTY: 19.833 UOM FT  
MLT:GERMANY MFG:GERMANY SLB/CL:1607310

0002 33047 CDS 4130 6736 3/4 X .049 ✓ 17/24 FT

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT
	40.000 FT	47.833 FT	47.833 FT	17.541

PCS 2

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: 9A991.d Export License: NLR Expiration Date: 0/00/00  
PO:49349405 HT:597607 PC: 2 CUSTOMER QTY: 47.833 UOM FT  
MLT:GERMANY MFG:GERMANY SLB/CL:1623145

0003 41723 D6061-T6 5/16 OD X .058 WA ✓ 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT
	40.000 FT	36.000 FT	36.000 FT	1.966

PCS 3

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00  
PO:49324038 HT:32704387 PC: 2 CUSTOMER QTY: 24.000 UOM FT  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:281022  
PO:49354489 HT:388604 PC: 1 CUSTOMER QTY: 12.000 UOM FT  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:422327

SP/6-12-6

**THANK YOU FOR THIS ORDER**

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE  
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL  
REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 60620876

FROM: CRAN

PAGE 2

CUST NUMBER: 1203820 NET WGT: 65.023 REQ.DATE: 12/08/16 CONFIRMED  
SOLD TO: SHIP TO:  
DART AEROSPACE LTD DART AEROSPACE LTD  
1270 ABERDEEN ST 1270 ABERDEEN ST  
HAWKESBURY ON HAWKESBURY ON  
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 12/02/16  
TERMS: NET 30 DAYS VIA: COMMON CARRIER  
F.O.B.: SHIPPING POINT FREIGHT: PREPAID  
CUST ORD NO.: PO34484 RELEASE NO.:  
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH

0004 42276 D6061-T6 1/2 OD X .058 WA 12 FT ML  
CLN# ORD QTY INVOICE QTY SHIPPED QTY WT PCS  
120.000 FT 120.000 FT 120.000 FT 11.362 10

\*\* 1 TEST REPORTS REQUIRED \*\*

\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00  
PO:49342317 HT:35361464 PC: 10 CUSTOMER QTY: 120.000 UOM FT  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:324203

0005 42558 D6061-T6 5/8 OD X .065 WA 12 FT ML  
CLN# ORD QTY INVOICE QTY SHIPPED QTY WT PCS  
40.000 FT 36.000 FT 36.000 FT 4.821 3

\*\* 1 TEST REPORTS REQUIRED \*\*

\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00  
PO:49343800 HT:F002049780001 PC: 3 CUSTOMER QTY: 36.000 UOM FT  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:219688

0006 36860 SMLS CD 304/L A269 3/4 OD X .049 WA 20' CL  
CLN# ORD QTY INVOICE QTY SHIPPED QTY WT PCS  
60.000 FT 60.000 FT 60.000 FT 22.003 3

\*\* 1 TEST REPORTS REQUIRED \*\*

\*\* 1 CERTS REQUIRED \*\*

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00

THANK YOU FOR THIS ORDER

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O'Neal High-Performance Metals Group



# Packing Slip

ORDER NO.: 60620876

FROM: CRAN

PAGE 3

CUST NUMBER: 1203820 NET WGT: 65.023 REQ.DATE: 12/08/16 CONFIRMED  
 SOLD TO: SHIP TO:  
 DART AEROSPACE LTD DART AEROSPACE LTD  
 1270 ABERDEEN ST 1270 ABERDEEN ST  
 HAWKESBURY ON HAWKESBURY ON  
 CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 12/02/16  
 TERMS: NET 30 DAYS VIA: COMMON CARRIER  
 F.O.B.: SHIPPING POINT FREIGHT: PREPAID  
 CUST ORD NO.: PO34484 RELEASE NO.:  
 RECEIVING PHONE:

LINE	ITEM DESCRIPTION	WIDTH	LENGTH
PO:49339072 HT.	YX1501783	PC: 3	CUSTOMER QTY: 60.000 UOM FT
MLT:CHINA	MFG:CHINA	SLB/CL:9-110	

BROKERS KUEHNE AND NAGEL LTD

-----		PACK INFO		-----	
AREA	TYPE OF PKG	PKGS	GRS	WEIGHT	WIDTH
B	REDDICRATE	1.000		90.000	24.5000

1.000 90.000

BY: TB  
 RT 000-

UNLOAD TYPE: NONE SPECIFIED

*Q16-12-16*

DATE SHIPPED \_\_\_\_\_

DATE FILLED \_\_\_\_\_

**THANK YOU FOR THIS ORDER**

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O'Neal High-Performance Metals Group



**Packing  
Slip**

ORDER NO.: 60620876 FROM: CRAN PAGE 4

CUST NUMBER: 1203820	NET WGT: 65.023	REQ.DATE: 12/08/16	CONFIRMED
SOLD TO:		SHIP TO:	
DART AEROSPACE LTD		DART AEROSPACE LTD	
1270 ABERDEEN ST		1270 ABERDEEN ST	
HAWKESBURY ON		HAWKESBURY ON	
CANADA	CN K6A 1K7	ONTARIO CANADA	CN K6A 1K7

SALESPERSON:	DONNA SMALLEY	SHIP BY:	12/02/16
TERMS:	NET 30 DAYS	27 ENGLEHARD DRIVE	
F.O.B.:	SHIPPING POINT	MONROE TWP	NJ 08831
CUST ORD NO.:	PO34484		
VIA:	COMMON CARRIER		
FREIGHT:	PREPAID		
RELEASE NO.:			
RECEIVING PHONE:			

"TW Metals MSDS data is available on our web site at [www.twmetals.com](http://www.twmetals.com). MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

**"CERTIFICATE OF CONFORMANCE"**

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for coniferous non-manufactured wood packing material"

Authorized Test Report Clerk Jessica Mannheim Date: 12/02/16

These commodities have been exported from the United States in accordance with the U.S. export control laws, export administrations regulations. Diversion contrary to U.S. law prohibited.

**THANK YOU FOR THIS ORDER**

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW.  
<http://www.twmetals.com/invoice-terms.html>

Benteler SteelTube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13666

# BENTELER

Steel/Tube

## ABNAHMEPRÜFZEUGNIS EN 10204-3.1

INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1  
EN 10204:2005-01

Benteler SteelTube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland

TW Metals  
The Aboretum, Suite 204  
760 Constitution Drive  
EXTON PA 19341  
USA

Dokument-Nr.: 41-849171/001/P

No. du document:

Kunden-Bestell-Nr.: 46002869 TW M49323019

Purchase Order No.:  
No. de commande du client:

Benteler Auftrags-Nr.: 1603710

Benteler Order No.:  
No. de commande Benteler:

Versandanzeigen-Nr.: 4198197

Dispatch Note No.:  
No. d'avis d'expédition:

Produkt: NAHTLOSE STAHLROHRE

Product: SEAMLESS STEEL TUBES

Produit: TUBES D'ACIER SANS SOUDURE

AMS-T-6736B Type 1, ASTM-A 519-2006, MIL-T-6736B Type 1

### Lieferbedingungen:

Terms of delivery:

Conditions de livraison:

Maße - Toleranzen:

Dimensions-tolerances:

Dimensions-tolérances:

Stahlsorte:

Steel grade:

Nuance d'acier:

Lieferzustand:

Delivery condition:

État de livraison:

Produktkennzeichnung:

Product marking:

Marquage du produit:

AEZ = Ätztintenbeschriftung, Etching ink marking, Gravure à l'encre . FK = Farbkennzeichnung, colour marking, marquage par couleur . FS = Farbschablonierung, paint stencilling, marquage par peinture . FSD = Farbschablonierung, Colour jet printer, imprimante à jet d'encre de couleur . LK = Laserkennzeichnung, Laser marking, Marquage laser . PKE = Etikettenkennzeichnung, tag marking, marquage sur étiquette . PS = Prägestempel, die stamp, marquage par polycopiage . TS = Tintenstrahlkennzeichnung, ink jet spray marking, imprimante à jet d'encre .

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Page:  
Page:

Hersteller: Warmrohrwerk/Zieherei

Manufacturer: IDIN EN ISO 9001, ISO/TS-16949 CERTIFIED BY TÜV NORD CERTI  
Producteur: (PED 9723JEC CERTIFIED BY TÜV NORD SYSTEMS)

Herstellerzeichen:

Manufacturer's brand:  
Marque du producteur:

Stempel des Abnahmebeauftragten: WA

Stamp of the inspection representative:  
Poinçon du contrôleur:

Stahlerschmelzungsverfahren: ELEKTROSTAHL

Steelmaking process: ELECTRIC FURNACE

Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

DAS

14

9-89

GRADE 4130, AMS 6360M

N

straightness acc. to customer request, AMS 2253E-83, Aircraft Type, Seamless, Cold Finished

FSD: BENTELER AMS-T-6736 B 1-MIL-T-6736 B 1-4130 N HEAT-NO. CD AQ S DIMENSIONS WA



ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 41-849171/001/P  
Document No.:  
No. du document:

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

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Page:  
Page:

Pos.	Stück	Maße	Länge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
			feet	lbs				
0010	110	0.500" O.D. * 0.083" WT 17 FT - 24 FT	2165,35	802	234812			

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de soudeuse									
0010	234812	0,320	0,210	0,53	0,005	0,002	0,88	0,19	0,11	0,10

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0010	234812	0,310	0,240	0,58	0,006	0,003	0,89	0,19	0,12	0,11

Prüfergebnisse / Test results / Résultats des essais

**Die Rohre wurden zerstörungsfrei geprüft:**  
The tubes are non destructive tested:  
Les tubes ont passé un essai non destructif:

ET-test: acc. to ASTM-A 450; ET - Test method: acc. to ASTM-E 309; for imperfections;  
ET-test: ET with rotating pancake coils; according to EN 10246-3; imperfections;  
Notch depth: 0,30 mm; notch width < = notch depth; notch length min. 2 x transducer width (max. 50 mm)

Augsensichtkontrolle: Visual inspection: Examen visuel:	PASSED	Materialverwechslungsprüfung: Material conformity test: Vérification de la nuance:	PASSED	Maßkontrolle: Dimensions examination: Vérification des dimensions:	PASSED
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Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probennahme erfolgte an Vielfachlängen.

The sampling was carried out on multiple lengths.

L'échantillonnage était réalisé aux longueurs multiples.





Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13656



Steel/Tube

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ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 41-849171/001/P  
Document No.:  
No. du document:

Zugversuch längs Vollprobe / Tensile test longitudinal Full section test specimen / Essai de traction longitudinale Eprouvette a section complete

Pos. Item Poste	Proben-Nr. Specimen No.	Schmelzen-Nr. Heat No.	Probenabmessung Specimen dimensions	Streckgrenze Yield strength	Zugfestigkeit Tensile strength	Dehnung Elongation	Einschnürung Area reduction
	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction
Anforderungen Requirements Exigences			mm	Rp 0,2 % PSI MIN 75000	Rm PSI MIN 95000	A2" % MIN 12.00	1. Formel 1. Formula 1. Formule
0010	000001	234812	12,70 X 2,10	92969	122122	18,00	
0010	000002	234812	12,70 X 2,10	93694	121977	18,00	
0010	000003	234812	12,70 X 2,10	94130	121977	18,00	

Randentkohlung / Surface decarburization / Décarburation superficielle

acc. MIL-T-6736B / AMS-T-6736B, decarburization outside max. 0.356 mm, decarburization outside + inside max. 0.46 mm

Vermerk / Remark / Remarque

Certificate remarks: The steel grade corresponds to MIL-T-6736B, AMS 6360M, material free from mercury contamination, FAR BAA: 52.225-1 CANNOT COMPLY, DFARS BAA: 252.225-7001 CAN COMPLY, FAR TAA: 52.225-5 CAN COMPLY, No weld repair has been carried out, Country of origin of the material and heat: Germany; see appendix page 1 of 1

Macroscopic examination: acc. to ASTM-E 381

Magnetic particle inspection: acc. to AMS 2301 G/2640, on prematerial

Grain size: acc. to ASTM-E 112; Grain size and finer: 5; Grain size: Longitudinal structure micrography, On prematerial

Verkäufer(in) / Sales personnel / Personne chargée : Mr Schwarz, Tel.: 05254 81-204311, Fax: 204388



Paderborn Schloß Neuhaus, 19.12.2014, TEL.: 05254.81-201767 FAX: 05254.81-201752

Abnahmebeauftragter  
Inspection representative

Contrôleur

THOMAS GOLLAN / TEM

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.  
We certify that the supplied products comply with the order specification. This document was prepared by means of electronic data processing and is valid without signature.  
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.

Benteler SteelTube GmbH  
Residenzstraße 1  
33104 Paderborn  
Germany  
Tel.: 49.5254.81-0 Fax: 49.5254.13666

Abnahmeprüfzeugnis EN 10204-3.1 / Anhang  
**Inspection Certificate EN 10204.3.1 / appendix**  
Certificat de réception EN 10204-3.1 / appendice

Dokument-Nr.  
**Document No.:**  
No. de document:

41-849171/001/P

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**Page:** 1 of 1  
Page: de

Halbzeuguntersuchung: Stahlsorte 4130 / Semi finished product examination: grade 4130 / Produit semi-fini: nuance 4130

Schmelzen-Nr. Heat No. Coulée No.	Position Item Poste	Korngröße Grain size Grosseur de grain (ASTM-E 112)	Härtbarkeit (min. Anforderungen) Hardenability (min. requirements) Trempabilité (exigence min.) (ASTM-A 255)		Magnetpulverprüfung Magnetic particle inspection Essai à la poudre magnétique (AMS 2301G / 2640J)	Makroätzung Macrostructure test Essai de macrostructure (ASTM-E 381)		
			J(5/16") min. 35 HRC	J(8/16") min. 28 HRC		max. S 2	max. R 1	max. C 2
234812 Decarburization Depth	010	min. 5	36	33 DAS 14 9-89	F max. 0.34	S max. 0.25		
		9-10 Outside 0,040 mm	Inside 0,000 mm	16/2/07	0.039	0.020	R 1	C 2



Der Stahl ist frei von Quecksilberverunreinigungen. / The steel is free of mercury contamination. / L'acier est libre des contaminations de mercure.

Paderborn Schloß Neuhaus, 22.12.2014  
Tel.: (0)5254.81-201760 Fax: (0)5254.81-201752

Abnahmebeauftragter  
**Inspection representative**  
Contrôleur

Thomas Gollan

✓

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13668

**BENTELER**  
Steel/Tube

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1**

INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1  
EN 10204:2005-01

Benteler Steel/Tube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland

TW Metals  
The Aboretum, Suite 204  
760 Constitution Drive  
EXTON PA 19341  
USA

Dokument-Nr.:  
Document No.: 41-952074/001/P

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

Kunden-Bestell-Nr.:  
Purchase Order No.: 48004191 TW M49349405

No. de commande du client:

Benteler Auftrags-Nr.:  
Benteler Order No.: 1623145

No. de commande Benteler:

Versandzeilen-Nr.:  
Dispatch Note No.: 4165430

No. d'avis d'expédition:

Produkt: NAHTLOSE STAHLROHRE  
Product: SEAMLESS STEEL TUBES  
Produit: TUBES D'ACIER SANS SOUDURE

Stahlschmelzungsverfahren: ELEKTROSTAHL  
Steelmaking process: ELECTRIC FURNACE  
Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

AMS-T-6736B Type 1, ASTM-A 519-2006 / MIL-T-6736B Type 1, AMS6360 Rev. M

Lieferbedingungen:

Terms of delivery:

Conditions de livraison:

Maße - Toleranzen: AMS 2253E-83, Aircraft Type, Seamless, Cold Finished

Dimensions-tolerances:

Dimensions-tolérances:

Stahlsorte: GRADE 4130

Steel grade:

Nuance d'acier:

Lieferzustand: Condition N

Delivery condition:

État de livraison:

Produktkennzeichnung:

FSD: BENTELER AMS6360M-AMS-T-6736 B 1-MIL-T-6736 B 1-AMS 2301J 4130 Condition N HEAT-NO.  
CD AQ S DIMENSIONS WA GERMANY

Product marking:

Marquage du produit:

AZZ = Ätzlinienbeschriftung, Etching ink marking, Gravure à l'encre . PK = Farblinienzeichnung, color marking, marquage par couleur . FS = Farbschablonenzeichnung, paint stencilling, marquage par peinture . FSD = Farbschablonenzeichnung, color jet printing, Impression à jet d'encre de couleur . LK = Laserkennzeichnung, Laser marking, Marquage laser . PKE = Etikettierkennzeichnung, tag marking, marquage sur étiquette . PS = Prägestempel, die stamp, marquage par poinçonnage . TS = Tintenstahlschmelzzeichnung, ink jet spray marking, imprimante à jet d'encre .

TW METALS  
E S AUG 11 2016  
T  
ACCEPTED BY

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13666

**BENTELER**  
Steel/Tube

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1**

INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 41-952074/001/P

Document No.:  
No. du document:

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Page:  
Page:

Pos.	Stück	Maße	Gesamtlänge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length total	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur totale	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
			feet	lbs				
0004	137	0.750" O.D. * 0.049" WT 30 PT - 24 FT	3281,17	1190	597607			

**Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]**

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0004	597607	0,320	0,250	0,53	0,006	0,003	0,87	0,19	0,12	0,15

**Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]**

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0004	597607	0,310	0,250	0,50	0,006	0,002	0,88	0,18	0,11	0,14

**Prüfergebnisse / Test results / Résultats des essais**

Die Rohre wurden zerstörungsfrei geprüft:

The tubes are non destructive tested:

Les tubes ont passé un essai non destructif:

ET-test: acc. to ASTM-A 450; ET - Test method: acc. to ASTM-E 309; for imperfections;

ET-test: ET with rotating pancake coils; according to EN 10246-3; imperfections;

Notch depth: 0,30 mm; notch width < = notch depth; notch length min. 2 x transducer width (max. 50 mm)

PASSED

Augensichtkontrolle:	PASSED	Materialverwechslungsprüfung:	PASSED	Maßkontrolle:	PASSED
Visual inspection:		Material conformity test:		Dimensions examination:	
Examen visuel:		Vérification de la nuance:		Vérification des dimensions:	

**Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques**

Die Probenahme erfolgte an Vielfachlängen.

The sampling was carried out on multiple lengths.

L'échantillonnage était réalisé aux longueurs multiples.

41-952074/001/P

Dokument-Nr.:  
Document No.:

10204-3.1

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ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1  
Zugversuch längs bei RT, Vollprobe / Tensile test longitudinal at RT, Full section test specimen / Essai de traction longitudinale à TA, Eprouvette a section complete

Pos. Item Poste	Proben-Nr. Specimen No. No. de l'éprouv.	Schmelzen-Nr. Heat No. No. de coulée	Probenabmessung Specimen dimensions Dimensions de l'éprouv.	Streckgrenze Yield strength Limite élastique	Zugfestigkeit Tensile strength Résistance à la traction	Dehnung Elongation Allongement
Anforderungen Requirements Exigences			mm	Rp 0,2 % KSI MIN 75	Rm KSI MIN 95	A2" % MIN 12.00
0004	000001	597607	19,00 X 1,25	115	126	19,00
0004	000002	597607	19,00 X 1,25	113	126	19,00
0004	000003	597607	19,00 X 1,25	112	127	18,00
0004	000004	597607	19,00 X 1,25	115	126	18,00

Randentkohlung / Surface decarburization / Décarburation superficielle

Pos. / Item / Poste: 0004

partial decarburization outside max. 0.009 in, partial decarburization inside max. 0.009 in, partial decarburization outside and inside max. 0.012 in, partial decarburization outside and inside max. 0.305 mm, without total decarburization; partial decarb. out. max.: 0,229 mm; partial decarb. ins. max.: 0,229 mm

Vermerk / Remark / Remarque

Pos. / Item / Poste: 0004

Certificate remarks: The steel grade corresponds to MIL-T-6736B, AMS 6360M, material free from mercury contamination, FAR BAA: 52.225-1 CANNOT COMPLY, DFARS BAA: 252.225-7001 CAN COMPLY, FAR TAA: 52.225-5 CAN COMPLY, No weld repair has been carried out, Country of origin of the material and heat: Germany; see Attachment 1

Pos. / Item / Poste: 0004

Macroscopic examination: acc. to ASTM-E 381

Pos. / Item / Poste: 0004

Magnetic particle inspection: acc. to AMS 2301 J/2540, on prematerial

Pos. / Item / Poste: 0004

Grain size: acc. to ASTM-E 112; Grain size and finer: 5; Grain size: Longitudinal structure microscopy, On prematerial

Verkäufer(in) / Sales Personnel / Personne chargée : Mr Schwarz, Tel.: 05254 81-204311, Fax: 204391

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13666

**BENTELER**  
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1

INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

41-952074/001/P

Dokument-Nr.:  
Document No.:  
No. du document:

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

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Page:  
Page:

Paderborn-Schloß Neuhaus, 22.07.2016, TEL.: 05254.81-201765 FAX.: 05254.81-201752

Abnahmebeauftragter  
Inspection representative

Contrôleur

i.A. THOMAS GOLLAN / GUT

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.  
We certify that the supplied products comply with the order specification. This document was prepared by means of electronic data processing and is valid without signature.  
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.

Abnahmeprüfzeugnis EN 10204-3.1 / Anhang  
**Inspection Certificate EN 10204.3.1 / appendix**  
Certificat de réception EN 10204-3.1 / appendice

Dokument-Nr.  
**Document No.:**  
No. de document

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**Page:** 1 of 1  
Page: de

41-952074/001/P

Halbzeuguntersuchung: Stahlsorte 4130 / Semi finished product examination: **grade 4130** / Produit semi-fini: nuance 4130

Schmelzen-Nr. Heat No. Coulée No.	Position Item Poste	Korngröße Grain size Grosseur de grain (ASTM-E 112)	Härtbarkeit (min. Anforderungen) Hardenability (min. requirements) Trempeabilité (exigence min.) (ASTM-A 255)		Magnetpulverprüfung Magnetic particle Inspection Essai à la poudre magnétique (AMS 2301J / 2640)		Makroätzung Macrostructure test Essai de macrostructure (ASTM-E 381)		
		min. 5	J(5/16") min. 35 HRC	J(8/16") min. 28 HRC	F max. 0,34	S max. 0,25	max. S 2	max. R 1	max. C 2
597607	004	8	43	34	0,029	0,020	S 2	R 1	C 2
		Outside 0,020 mm	Inside 0,050 mm	DAS 14 9-89 16/12/07					
Decarburization Depth		BENTELER Steel / Tube GmbH							

Der Stahl ist frei von Quecksilberverunreinigungen. / The steel is free of mercury contamination. / L'acier est libre des contaminations de mercure.

Paderborn Schloss Neuhaus, 22.07.2016  
Tel.: (0)5254.81-201760 Fax: (0)5254.81-201752

Abnahmebeauftragter  
**Inspection representative**  
Contrôleur

Thomas Gollan



A COMPANY OF MUELLER INDUSTRIES

PRECISION TUBE CO.

287 WISSAHICKON AVE.  
NORTH WALES PA 19454

Control No: 168215\*\*

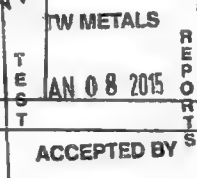
**CERTIFIED TEST REPORT**

CUSTOMER PURCHASE ORDER NO.	CUST. ORD. NO.	PRECISION TUBE P/N
49324038 LINE 001	281022	24A031250580005
<b>SOLD:</b> TW METALS <b>TO</b> 27 ENGLEHARD DRIVE MONROE TWP, NJ 08831 UNITED STATES	<b>SHIP:</b> TW METALS <b>TO</b> 27 ENGLEHARD DRIVE MONROE TWP, NJ 08831 UNITED STATES	

QUANTITY ORD.	DESCRIPTION	QTY. SHIPPED	DATE SHIPPED
3000 FT	METAL - 6061 ALUM TEMPER - T6 SPEC - AMS 4082P ASTM-B-210-12 AMS-WW-T-700/6B LENGTH - 12 FT LGTH TOL +.1250 IN -.0000 IN SHAPE - ROUND FINISH - STRAIGHT EXACT LENGTHS OD .3125 +.0030 -.0030 ID WALL .0580 +.0040 -.0040	3300 FT	01/07/15

**MECHANICAL PROPERTIES**

SAMPLE #	TENSILE STRENGTH (P.S.I.)	YIELD STRENGTH (P.S.I.)	ELONGATION IN 2 INCHES (%)	ROCKWELL HARDNESS	AVERAGE GRAIN SIZE (MM.)
1	46,473	41,218	15		



**DESTRUCTIVE TESTS**

Comments: FAR BAA COMPLIES, DFARS BAA COMPLIES, FAR TAA COMPLIES

**NON-DESTRUCTIVE TESTS**

EDDY CURRENT: PASS

DAS

14

9-89

1/6/12/07

**CHEMICAL COMPOSITION**

ALLOY:	6061	HEAT:	TRACEABILITY #: 32704387						
			RAW MATL VENDOR: PT45444 - Kaiser Aluminum						
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
Min	0.40		0.15		0.80	0.04			Rem.
Max	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	
OTHER ELEMENTS: 0.05 MAX EACH / 0.15 MAX TOTAL									

OTHER ELEMENTS: 0.05 MAX EACH / 0.15 MAX TOTAL

We hereby certify that the material has been manufactured and tested in accordance with the requirements of the applicable specifications and descriptions set forth on Precision Tube's sales acknowledgement. During the manufacturing, testing and inspection, the product did not come into direct contact with mercury or any of its compounds, nor with any mercury containing device employing a single boundary containment. Test results indicate that the material is compliant with the current revision of the RoHS Directive (2002/95/EU).

Melted and Manufactured in USA  
QMS Registered to ISO 9001: 2008

By:

Art Onaltis  
QA Manager

01/07/15

Page: 1 of 1



# KAISER ALUMINUM

FABRICATED PRODUCTS

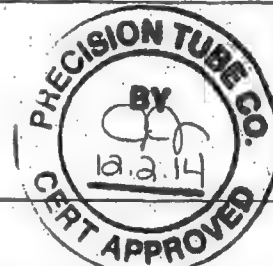
*Best in Class*

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
2425 STEVENS DRIVE  
RICHLAND, WA 99352

CUSTOMER PO NUMBER: PT45444		CUSTOMER PART NUMBER: SPIRIT-371850		PRODUCT DESCRIPTION: 5.400 LB/PC .500 LB/-0 LB 1.312 OD X .085 WALL ESRT	
KAISER ORDER NUMBER: 317897	LINE ITEM: 001	SHIP DATE: 11/25/2014	KAISER LOT NUMBER: 50751-284	ALLOY: 6061	TEMPER: O
WEIGHT SHIPPED: 10618.000 LB	QUANTITY: 1933.000 PCS	B/L NUMBER: 004598	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 13.984 FT
SHIP TO:  PRECISION TUBE CO 287 WISSAHICKON AVENUE N. WALES, PA 19454 USA			SOLD TO:  MUELLER INDUSTRIES, INC PRECISION TUBE 8285 TOURNAMENT DRIVE STE. 150 MEMPHIS, TN 38125 USA		



### Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	%Elong in 2	HARDNESS	CONDUCT.	BEND
50751-284	0001	0001	19.5	8.7	19.8	N/A	N/A	N/A
50751-284	0001	0002	19.6	9.2	19.6	N/A	N/A	N/A
50751-284	0001	0003	19.3	8.7	20.3	N/A	N/A	N/A
50751-284	0001	0004	19.4	9.0	18.8	N/A	N/A	N/A
50751-284	0001	0005	19.7	9.1	19.3	N/A	N/A	N/A
50751-284	0001	0006	19.7	8.8	18.2	N/A	N/A	N/A
50751-284	0001	0007	19.5	9.3	19.9	N/A	N/A	N/A
50751-284	0001	0008	19.8	9.2	19.2	N/A	N/A	N/A
50751-284	0001	0009	19.2	8.6	19.9	N/A	N/A	N/A
50751-284	0001	0010	19.4	9.1	18.9	N/A	N/A	N/A
50751-284	0001	0011	19.7	8.7	21.4	N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	.0
F73891	.60	.30	.23	.05	.97	.06	.06	.02	.00	.00	.00	.02	.05
F73885	.60	.30	.23	.05	.97	.06	.05	.02	.00	.00	.00	.01	.02
F73887	.57	.30	.22	.05	.98	.07	.11	.02	.00	.00	.00	.01	.02

### Applicable Requirements:

ASTM-B241-12 NON-STENCILED ASTM-B221-13 ASTM-B345-11 AMS-QQ-A-200/8 97(R07) TYPE I  
UNS#A96061 Also conforms to EN 10204 3.1

### Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MERCURY IS NOT A NORMAL BACKGROUND ELEMENT IN ALUMINUM ALLOYS. NEITHER MERCURY NOR ANY OF ITS COMPOUNDS ARE UTILITZED BY KAISER ALUMINUM IN THE MANUFACTURE OF THIS MATERIAL.

Plant Serial: 00011377

Kaiser Order Number: 317897

Line Item: 001

**KAISER**  
**ALUMINUM**  
**FABRICATED PRODUCTS**

*Best in Class*

**CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
2425 STEVENS DRIVE  
RICHLAND, WA 99352

**CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms and conditions of sale. Test reports are on file, subject to examination.

JOSEPH AMES, QUALITY MANAGER

*Jph*

Plant Serial: 00011377

Kaiser Order Number: 317897

Line Item: 001



PRECISION TUBE CO.  
287 WISSAHICKON AVE.  
NORTH WALES PA 19454

Control No: 1604

CERTIFIED TEST REPORT

CUSTOMER PURCHASE ORDER NO. 49354489 LINE 001	CUST. ORD. NO. 422327	PRECISION TUBE P/N 24A031250580005
<b>SOLD:</b> TW METALS <b>TO</b> 175 TUBEWAY FOREST PARK, GA 30298 UNITED STATES	<b>SHIP:</b> TW METALS <b>TO</b> 175 TUBEWAY FOREST PARK, GA 30298 UNITED STATES	

QUANTITY ORD.	DESCRIPTION	QTY. SHIPPED	DATE SHIPPED
1824 FT	METAL - 6061 ALUM TEMPER - T6 SPEC - AMS 4082P ASTM-B-210-12 AMS-WW-T-700/6C LENGTH - 12 FT LGTH TOL +.1250 IN -.0000 IN SHAPE - ROUND FINISH - STRAIGHT EXACT LENGTHS OD .3125 +.0030 -.0030 ID WALL .0580 +.0040 -.0040	2004 FT  DAS 14 9-89 16/12/07	08/05/16

MECHANICAL PROPERTIES

SAMPLE #	TENSILE STRENGTH (P.S.I.)	YIELD STRENGTH (P.S.I.)	ELONGATION IN 2 INCHES (%)	ROCKWELL HARDNESS	AVERAGE GRAIN SIZE (MM.)
1	45,775	40,439	17		

TEST REPORTS

DESTRUCTIVE TESTS

ACCEPTED BY

Comments: FAR BAA COMPLIES, DFARS BAA COMPLIES, FAR TAA COMPLIES

49354489  
AUG 09 2016

TW METALS

NON-DESTRUCTIVE TESTS

EDDY CURRENT: PASS

CHEMICAL COMPOSITION

ALLOY:	6061	HEAT:	TRACEABILITY #: 388604						
			RAW MATL VENDOR: PTE2249 - Kaiser Aluminum						
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
Min	0.40		0.15		0.80	0.04			Rem.
Max	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	
OTHER ELEMENTS: 0.05 MAX EACH / 0.15 MAX TOTAL									

We hereby certify that the material has been manufactured and tested in accordance with the requirements of the applicable specifications and descriptions set forth on Precision Tube's sales acknowledgement. During the manufacturing, testing and inspection, the product did not come into direct contact with mercury or any of its compounds, nor with any mercury containing device employing a single boundary containment. Test results indicate that the material is compliant with the current revision of the RoHS Directive (2011/65/EU).

Melted and Manufactured in USA  
QMS Registered to ISO 9001: 2008

By: Art Onalitis  
Art Onalitis  
QA Manager

08/05/16

Page: 1 of 1

# KAISER ALUMINUM

FABRICATED PRODUCTS

*Best in Class*

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
2425 STEVENS DRIVE  
RICHLAND, WA 99352

CUSTOMER PO NUMBER: PTC2249		CUSTOMER PART NUMBER: SPIRIT-371850		PRODUCT DESCRIPTION: 5.400 LB/PC .500 LB/-0 LB 1.312 OD X .085 WALL ESRT	
KAISER ORDER NUMBER: 320031	LINE ITEM: 001	SHIP DATE: 04/01/2016	KAISER LOT NUMBER: 50751-323	ALLOY: 6061	TEMPER: O
WEIGHT SHIPPED: 16135.000 LB	QUANTITY: 2913.000 PCS	B/L NUMBER: 004991	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 13.984 FT
SHIP TO:  PRECISION TUBE CO 287 WISSAHICKON AVENUE N. WALES, PA 19454 USA			SOLD TO:  MUELLER INDUSTRIES, INC PRECISION TUBE 8285 TOURNAMENT DRIVE STE. 150 MEMPHIS, TN 38125 USA		



### Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	%Elong in 2	HARDNESS	CONDUCT.	BEND
50751-323	0001	0002	17.3	5.9	26.7	NA N/A	N/A	N/A
50751-323	0001	0003	17.3	5.9	26.7	NA N/A	N/A	N/A
50751-323	0001	0004	17.3	5.4	27.2	NA N/A	N/A	N/A
50751-323	0001	0005	18.0	6.1	28.0	NA N/A	N/A	N/A
50751-323	0001	0006	17.4	5.7	26.4	NA N/A	N/A	N/A
50751-323	0001	0007	17.9	6.2	27.6	NA N/A	N/A	N/A
50751-323	0001	0008	17.5	5.8	26.6	NA N/A	N/A	N/A
50751-323	0001	0009	17.7	5.7	28.6	NA N/A	N/A	N/A
50751-323	0001	0010	16.9	5.6	25.2	NA N/A	N/A	N/A
50751-323	0001	0011	17.6	5.8	27.9	NA N/A	N/A	N/A
50751-323	0001	0012	17.8	6.9	27.4	NA N/A	N/A	N/A
50751-323	0001	0013	18.1	6.1	27.2	NA N/A	N/A	N/A
50751-323	0001	0014	17.4	5.7	28.3	NA N/A	N/A	N/A
50751-323	0001	0015	17.0	5.6	28.6	NA N/A	N/A	N/A
50751-323	0001	0016	18.2	5.8	26.6	NA N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	.0
F75366	.58	.29	.22	.06	.98	.08	.05	.02	.00	.00	.00	.01	.02

### Applicable Requirements:

ASTM-B241-12 NON-STENCILED ASTM-B221-13 ASTM-B345-11 AMS-QQ-A-200/8 97(R07) TYPE I  
UNS#A96061 Also conforms to EN 10204 3.1

TEST REPORTS  
ACCEPTED BY  
49354489  
AUG 09 2016

*LB*  
TW METALS

Plant Serial: 00013829  
Kaiser Order Number: 320031  
Line Item: 001

**KAISER  
ALUMINUM  
FABRICATED PRODUCTS**

*Best in Class*

**CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
2425 STEVENS DRIVE  
RICHLAND, WA 99352

**Miscellaneous Notes**

MANUFACTURED IN USA MELTED IN USA  
MERCURY IS NOT A NORMAL BACKGROUND ELEMENT IN ALUMINUM ALLOYS. NEITHER MERCURY NOR ANY  
OF ITS COMPOUNDS ARE UTILITZED BY KAISER ALUMINUM IN THE MANUFACTURE OF THIS MATERIAL.

**CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC hereby certifies that metal shipped under this order has been  
inspected and tested and found in conformance with applicable specifications forming a part of the  
description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on  
Kaiser's general terms and conditions of sale. Test reports are on file, subject to examination.

JOSEPH AMES, QUALITY MANAGER

*Jph*

**TEST REPORTS  
ACCEPTED BY**

AUG 09 2016

*LB*  
**TW METALS**

Plant Serial: 00013829  
Kaiser Order Number: 320031  
Line Item: 001



PRECISION TUBE CO.  
287 WISSAHICKON AVE.  
NORTH WALES PA 19454

Control No: 171317

A COMPANY OF MUELLER INDUSTRIES

### CERTIFIED TEST REPORT

CUSTOMER PURCHASE ORDER NO.	CUST. ORD. NO.	PRECISION TUBE P/N
49342317 LINE 001	324203	24A050000580003

**SOLD:** TW METALS  
**TO** 235 TUBEWAY  
CAROL STREAM, IL 60188  
UNITED STATES

**SHIP:** TW METALS  
**TO** 235 TUBEWAY  
CAROL STREAM, IL 60188  
UNITED STATES

QUANTITY ORD.	DESCRIPTION	QTY. SHIPPED	DATE SHIPPED
3336 FT	METAL - 6061 ALUM TEMPER - T6 SPEC - AMS 4082P WW-T-700/6F AM 2 AMS-WW-T-700/6B ASTM-B-210-12 LENGTH - 12 FT LGTH TOL +.1250 IN -.0000 IN SHAPE - ROUND FINISH - STRAIGHT EXACT LENGTHS OD .5000 +.0030 -.0030 ID WALL .0580 +.0040 -.0040	3528 FT	01/20/16



### MECHANICAL PROPERTIES

SAMPLE #	TENSILE STRENGTH (P.S.I.)	YIELD STRENGTH (P.S.I.)	ELONGATION IN 2 INCHES (%)	ROCKWELL HARDNESS	AVERAGE GRAIN SIZE (MM.)
1	45,602	41,239	17		

### DESTRUCTIVE TESTS

Comments: FAR BAA COMPLIES, DFARS BAA COMPLIES, FAR TAA COMPLIES

DAS  
14  
9-8c

16/12/07

### NON-DESTRUCTIVE TESTS

EDDY CURRENT: PASS

### CHEMICAL COMPOSITION

ALLOY: 6061 HEAT: TRACEABILITY #: 35361464  
RAW MATL VENDOR: PT56438 - Kaiser Aluminum

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
Min	0.40		0.15		0.80	0.04			Rem.
Max	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	

OTHER ELEMENTS: 0.05 MAX EACH / 0.15 MAX TOTAL

We hereby certify that the material has been manufactured and tested in accordance with the requirements of the applicable specifications and descriptions set forth on Precision Tube's sales acknowledgement. During the manufacturing, testing, and inspection, the product did not come into direct contact with mercury or any of its compounds, nor with any mercury containing device employing a single boundary containment. Test results indicate that the material is compliant with the current revision of the RoHS Directive (2011/65/EU).

Manufactured in the USA  
QMS Registered to ISO 9001: 2008

By:   
Art Onalits  
QA Manager

01/20/16  
Page: 1 of 1

JB

# KAISER ALUMINUM

FABRICATED PRODUCTS

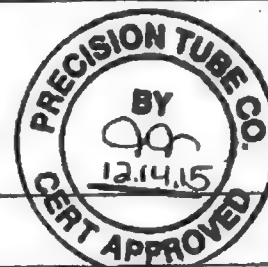
*Best in Class*

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
2425 STEVENS DRIVE  
RICHLAND, WA 99352

CUSTOMER PO NUMBER: <b>PT56438</b>		CUSTOMER PART NUMBER: <b>SPIRIT-371850</b>		PRODUCT DESCRIPTION: <b>5.400 LB/PC .600 LB/-0 LB 1.312 OD X .085 WALL ESRT</b>	
KAISER ORDER NUMBER: <b>319575</b>	LINE ITEM: <b>001</b>	SHIP DATE: <b>12/11/2015</b>	KAISER LOT NUMBER: <b>50751-312</b>	ALLOY: <b>6061</b>	TEMPER: <b>O</b>
WEIGHT SHIPPED: <b>4046.000 LB</b>	QUANTITY: <b>728.000 PCS</b>	B/L NUMBER: <b>004904</b>	DIAM/DA/THICKS: <b></b>	WIDTH: <b></b>	LENGTH: <b>13.984 FT</b>
SHIP TO:  <b>PRECISION TUBE CO 287 WISSAHICKON AVENUE N. WALES, PA 19454 USA</b>			SOLD TO:  <b>MUELLER INDUSTRIES, INC PRECISION TUBE 8285 TOURNAMENT DRIVE STE. 150 MEMPHIS, TN 38125 USA</b>		



### Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	%Elong in 2	HARDNESS	CONDUCT.	BEND
50751-312	0001	0002	18.0	5.6	28.5	NA N/A	N/A	N/A
50751-312	0001	0003	18.4	5.3	28.0	NA N/A	N/A	N/A
50751-312	0001	0004	18.4	5.7	27.6	NA N/A	N/A	N/A
50751-312	0001	0005	17.7	5.1	27.2	NA N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

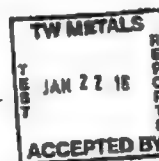
LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	.0
F75382	.58	.35	.22	.05	.98	.09	.06	.03	.00	.00	.00	.01	.02
F82351	.61	.30	.26	.05	1.03	.08	.05	.02	.00	.00	.00	.01	.02

### Applicable Requirements:

ASTM-B241-12 NON-STENCILED ASTM-B221-13 ASTM-B345-11 AMS-QQ-A-200/8 '97(R07) TYPE I  
UNS#A96061 Also conforms to EN 10204 3.1

### Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MERCURY IS NOT A NORMAL BACKGROUND ELEMENT IN ALUMINUM ALLOYS. NEITHER MERCURY NOR ANY  
OF ITS COMPOUNDS ARE UTILITIZED BY KAISER ALUMINUM IN THE MANUFACTURE OF THIS MATERIAL.



Plant Serial: 00013235  
Kaiser Order Number: 319575  
Line Item: 001

**KAISER**  
**ALUMINUM**  
**FABRICATED PRODUCTS**

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**CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

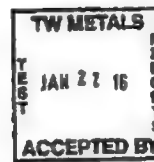
KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
2425 STEVENS DRIVE  
RICHLAND, WA 99352

**CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms and conditions of sale. Test reports are on file, subject to examination.

JOSEPH AMES, QUALITY MANAGER

*Jph*



Plant Serial: 00013235  
Kaiser Order Number: 319575  
Line Item: 001



# KAISER ALUMINUM

FABRICATED PRODUCTS

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CERTIFIED TEST REPORT  
<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: <b>M49343800-1</b>		CUSTOMER PART NUMBER: <b>42558</b>		PRODUCT DESCRIPTION: <b>Drawn Seamless Tube/Pipe</b>	
KAISER ORDER NUMBER: <b>219688</b>	LINE ITEM: <b>001</b>	SHIP DATE: <b>01/11/2016</b>	KAISER LOT NUMBER: <b>F00204978</b>	ALLOY: <b>6061</b>	TEMPER: <b>T6</b>
WEIGHT SHIPPED: <b>572.000 LB</b>	QUANTITY: <b>355.000 PCS</b>	B/L NUMBER: <b>220716</b>	DIAM/DA/THKNS: <b></b>	WIDTH: <b></b>	LENGTH: <b>12.000 FT</b>
SHIP TO:  <b>TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA</b>			SOLD TO:  <b>TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA</b>		

## Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00204978	0001	1	45.6	38.9	19.5	N/A	N/A	N/A
F00204978	0002	1	46.5	40.3	17.5	N/A	N/A	N/A

## Chemical Composition (wt%), Aluminum Remainder

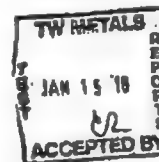
LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D75200	.60	.25	.23	.05	.99	.07	.04	.02	.00	.00	.00	.01	.02

## Applicable Requirements:

Description: OD: 0.6250" Wall: 0.0650" Round @  
AMS-4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F  
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS-4082P, WAS NOT OILED.  
This Product Complies to FAR BAA, DFARS BAA, FAR TAA  
COMPLIES TO DIN EN 10204 JAN 2005  
No Weld Repair. Mercury Free.

DAS  
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9-89

16/12/07



## Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA  
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5  
TRADE AGREEMENTS).

Plant Serial: 00021031  
Kaiser Order Number: 219688  
Line Item: 001

**KAISER**  
**ALUMINUM**  
**FABRICATED PRODUCTS**

*Best in Class*

**CERTIFIED TEST REPORT**

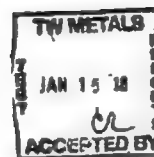

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

**CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Nathaniel Stevens, Quality Manager



Plant Serial: 00021031  
Kaiser Order Number: 219688  
Line Item: 001

## MILL TEST REPORT

Purchaser.: TW METALS-Cranbury				Certificate No.: 15-11-44					
Contract No.: TWM P.O.No.: M49339072				Date of Issue.: 2015.11.5					
Commodity: Stainless Steel Seamless Tubes				Specifications: ASTM A213-15/ASME SA213-13/ASTM A269-14e1 EAW					
Process: Cold Drawn				Delivery Condition: OD Polished to 240 Grit					
Steel Grade	Heat Number	Lot Number	Dimensions				Quantity		
TP304/TP304L	YX1501-783	9-110	3/4" x 0.049" x 20"				Pieces	Feet	
							250	5,000	
Chemical Composition by Weight (%)									
Element	C	Mn	P	S	Si	Cr	Ni	Mo	Co
Requirements	≤0.035	≤2.00	≤0.045	≤0.030	≤1.00	18.00-20.00	8.00-12.00	-	-
Ladle Analysis	0.012	0.68	0.031	0.001	0.37	18.35	8.05	-	-
Product Analysis	0.019	0.70	0.033	0.002	0.39	18.37	8.31	-	-
Mechanical Properties									
Test Item	Elongation (% in 2")		Tensile Strength (PSI) Rm			Yield Strength (PSI) Rp / 0.2%			
Requirements	≥35		≥75,000			≥30,000			
Test Results	63/64		88,000/89,000			33,000/34,000			
Test Item	Reduction of Area Z (%)	Hardness	Cold Bend Test	Flaring Test	Flattening Test	Flange Test	P.M.I. Test		
Requirements	-	HRB≤80	-	22%	e=0.09	-	-		
Test Results	-	75/77	-	Passed	Passed	-	OK		
Test Item	Eddy Current Test	Air Underwater Pressure Test	Ultrasonic Test	Intergranular Corrosion Test	Macroscopic Inspection				
Requirements	ASTM E 426	-	-	ASTM A262 E	End Cut	Appearance			
Test Results	Passed	-	-	OK	OK	OK			

ISO 9001:2008 Certified by Intertek 110703068

PED Certified by SZUTEST 2195-PED-1526002

## Additional Remarks:

- (1) All tubes annealed to above 1900 Deg F and water quenched below 800 Deg F in 3 minutes
- (2) All tubes tested per ASTM A1016-14
- (3) Materials is NACE MR0103-2007 compliant (per Section 2.5)
- (4) Materials is NACE MR0175/ISO 15156-2003 compliant (per Section 4.2.1)
- (5) In Compliance with EN 10204-3.1
- (6) In Compliance with RoHS Stipulation
- (7) No weld repair performed
- (8) Free from mercury contamination
- (9) Free from radioactive contamination
- (10) Billets melt and pipes/tubes manufactured in China
- (11) All tubes 100% PMI tested
- (12) All tubes 100% Eddy Current tested

CANNOT CERTIFY COMPLIANCE  
FAR BAA / DFARS BAA / FAR TAADAS  
14  
9-88

16/12/07



By:

James Shi

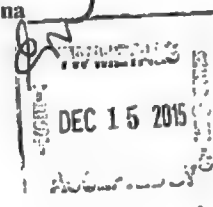
James Shi / Manager

Quality Control Department

We hereby certify that this report is true and correct.

Shanghai Pufa Stainless Steel Pipe Factory

No. 59, Shuangye Road, Wanggang, New Pudong District, Shanghai, China



# MATERIAL RECEIPT INSPECTION FORM

MATERIAL M6061T6T.625W.065 PO / BATCH NO. 34484/136323  
 DATE 11/12/07

MATERIAL CERT REC'D: yes  
 QUANTITY RECEIVED: 36'  
 QUANTITY INSPECTED: 36'  
 QUANTITY REJECTED: \_\_\_\_\_

THICKNESS ORDERED: .065  
 THICKNESS RECEIVED: .065  
 SHEET SIZE ORDERED: \_\_\_\_\_  
 SHEET SIZE RECEIVED: \_\_\_\_\_

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/> N	
CORROSION	Y <input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> N	
CORRECT MATERIAL	<input checked="" type="checkbox"/> N	<u>M6061T6</u>
CORRECT THICKNESS	<input checked="" type="checkbox"/> N	<u>.065</u>
PHOTO REQUIRED	Y <input checked="" type="checkbox"/>	
CORRECT MATERIAL	<input checked="" type="checkbox"/> N	<u>ASTM B210</u>
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> N	<u>HEAT# F002049780001</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> N	<u>M6061T6T.625W.065</u>
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> N	<u>M136323</u>
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW				
TYPE OF MATERIAL	HRC	HRB	DUR A	DUR D
SIZE OF TEST SAMPLE				
HARDNESS / DUROMETER READING				

testers located in the Quality Office

QG 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>14</u> DATE: <u>11/12/07</u>	SIGNED OFF BY: _____ DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061TL6T.D.3125W.058 PO / BATCH NO.: 34484/136323  
 DATE: 11/12/07

MATERIAL CERT REQ'D: yes  
 QUANTITY RECEIVED: 36'  
 QUANTITY INSPECTED: 36'  
 QUANTITY REJECTED: \_\_\_\_\_

THICKNESS ORDERED: .058  
 THICKNESS RECEIVED: .058  
 SHEET SIZE ORDERED: \_\_\_\_\_  
 SHEET SIZE RECEIVED: \_\_\_\_\_

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT FINISH	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORROSION	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT GRAIN DIRECTION	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT MATERIAL	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	<u>6061TL6</u>
CORRECT THICKNESS	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	<u>.058</u>
PHOTO REQUIRED	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT MATERIAL	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	<u>ASTM B210</u>
CORRECT REF # TO LINK CERT	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	<u>HEAT # 32704387 388604</u>
CORRECT MATERIAL IDENTIFICATION	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	<u>M6061TL6.3125W.058</u>
CORRECT M# ON THE MATERIAL	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	<u>M136323</u>
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	

testers located in the Quality Office

<b>QC 18 INSPECTION</b>		<b>ENGINEERING SIGNOFF (if required)</b>	
INSPECTED BY: <u>DAS</u> <u>14</u> <u>0-09</u>		SIGNED OFF BY: _____	
DATE: <u>11/12/07</u>		DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL M6061T6TO.500W.058 PO / BATCH NO. 34484/136323  
 DATE 11/12/07

MATERIAL CERT REC'D: yes  
 QUANTITY RECEIVED: 120'  
 QUANTITY INSPECTED: 120'  
 QUANTITY REJECTED: \_\_\_\_\_

THICKNESS ORDERED: .058  
 THICKNESS RECEIVED: .058  
 SHEET SIZE ORDERED: \_\_\_\_\_  
 SHEET SIZE RECEIVED: \_\_\_\_\_

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	
CORROSION	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	
CORRECT MATERIAL	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	<u>6061T6</u>
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	<u>.058</u>
PHOTO REQUIRED	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
CORRECT MATERIAL	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	<u>ASTM B210</u>
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	<u>#E47# 353614164</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	<u>M6061T6T.500W.058</u>
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	<u>M136323</u>
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>14</u> <small>9-89</small> DATE: <u>11/12/07</u>	SIGNED OFF BY: _____ DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL M304TR.750W.049

PO / BATCH NO 34484/136323

DATE: 16/12/07

MATERIAL CERT REQD yes

THICKNESS ORDERED: .049

QUANTITY RECEIVED: 60'

THICKNESS RECEIVED: .049

QUANTITY INSPECTED: 60'

SHEET SIZE ORDERED: \_\_\_\_\_

QUANTITY REJECTED: \_\_\_\_\_

SHEET SIZE RECEIVED: \_\_\_\_\_

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y N	
CORROSION	Y <input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y N	
CORRECT MATERIAL	<input checked="" type="checkbox"/> Y N	304
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y N	.049
PHOTO REQUIRED	Y <input checked="" type="checkbox"/> N	
CORRECT MATERIAL	<input checked="" type="checkbox"/> Y N	ASTM A269
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y N	HEAT# 4X1501783
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y N	M304TR.750W.049
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y N	M136323
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.  
RECORD RESULTS BELOW

	HRC	HRB	DUR A	DUR D
TYPE OF MATERIAL				
SIZE OF TEST SAMPLE				
HARDNESS / DUROMETER READING				

testers located in the Quality Office

QC 18 INSPECTION

ENGINEERING SIGNOFF (if required)

INSPECTED BY: DAS

SIGNED OFF BY: \_\_\_\_\_

DATE: 16/12/07

DATE: \_\_\_\_\_

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL M4130 NTO.500W.083

PO / BATCH NO. 34484/136323

DATE 16/12/07

MATERIAL CERT REQD yes

QUANTITY RECEIVED 19.833

QUANTITY INSPECTED: 19.833

QUANTITY REJECTED: \_\_\_\_\_

THICKNESS ORDERED .083

THICKNESS RECEIVED: .083

SHEET SIZE ORDERED: \_\_\_\_\_

SHEET SIZE RECEIVED: \_\_\_\_\_

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/> N	
CORROSION	Y <input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> N	
CORRECT MATERIAL	<input checked="" type="checkbox"/> N	4130
CORRECT THICKNESS	<input checked="" type="checkbox"/> N	.083
PHOTO REQUIRED	Y <input checked="" type="checkbox"/>	
CORRECT MATERIAL	<input checked="" type="checkbox"/> N	AMS 6371
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> N	HEAT# 234812
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> N	M4130 NTO.500W.083
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> N	M136323
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK.  
RECORD RESULTS BELOW

	HRC	HRB	DUR A	DUR D	
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION

ENGINEERING SIGNOFF (if required)

INSPECTED BY: DAS

SIGNED OFF BY: \_\_\_\_\_

DATE: 16/12/07

DATE: \_\_\_\_\_

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



# MATERIAL RECEIPT INSPECTION FORM

MATERIAL M4130NT, 750W, 049

PO / BATCH NO 34484/136323

DATE 16/12/07

MATERIAL CERT REC'D: yes

THICKNESS ORDERED: .049

QUANTITY RECEIVED: 47.833'

THICKNESS RECEIVED: .049

QUANTITY INSPECTED: 42.833'

SHEET SIZE ORDERED: \_\_\_\_\_

QUANTITY REJECTED: \_\_\_\_\_

SHEET SIZE RECEIVED: \_\_\_\_\_

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	
CORROSION	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	
CORRECT MATERIAL	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	4130
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	.049
PHOTO REQUIRED	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	
CORRECT MATERIAL	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	AMS 6371
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	HEAT # 597607
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	M4130NT, 750W, 049
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	M136323
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	

testers located in the Quality Office

<b>QC 18 INSPECTION</b> INSPECTED BY: <u>14</u> DATE: <u>16/12/07</u>	<b>ENGINEERING SIGNOFF (if required)</b> SIGNED OFF BY: _____ DATE: _____
---	---

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID PO34484

Purchase Order Date 11/30/2016

PO Print Date 11/30/2016

Page Number 1 of 5

Order From :

VU-TWM001

Ship To : DART AEROSPACE LTD

TW METALS  
PO BOX 933014  
ALTANTA, GA 31193-3014  
US

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

E-MAILED

DEC 01 2016

Contact Name

Vendor Phone 585 768 5600

Ship To Contact

Ship To Phone

Ship Via: YRC COLLECT

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax # 10127-2607

Terms

Net 30

Currency

USD

FOB

FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	M304TR0.750W.049	304 RD Tube .750 x .049W	12/8/2016 Yes 12/8/2016		60.00 f	\$2.10	\$126.00
MATERIAL: AISI 304/316 SA SEAMLESS ROUND TUBING AS PER ASTM A213 OR AMSE SA213 OR ASTM A269							
Line Total:							\$126.00
2	M4130NT0.500W.083	4130 RD tube .500 x .083W	12/8/2016 Yes 12/8/2016		20.00 f	\$4.00	\$80.00
MATERIAL: AISI 4130N SEAMLESS STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361 6362/6373/6374							
Line Total:							\$80.00

rec'd 19.833  
SP/6-12-6

Note:

11/30/2016



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Hawkesbury, ON K6A 1K7  
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## PURCHASE ORDER

Purchase Order ID **PO34484**

Purchase Order Date 11/30/2016

PO Print Date 11/30/2016

Page Number 2 of 5

**Order From :**

VU-TWM001

TW METALS  
PO BOX 933014  
ALTANTA, GA 31193-3014  
US

**Ship To :** DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 585 768 5600

**Ship To Contact**

**Ship To Phone**

**Ship Via:** YRC COLLECT

**Ship Acct:**

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #** 10127-2607

**Terms** Net 30

**Currency** USD

**FOB** FCA - (Free Carrier)

3	M4130NT0.750W.049	4130 RD Tube .750 x.049W	✓	12/8/2016	40.00	\$6.00	\$240.00
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Yes

12/8/2016

MATERIAL: AISI 4130N SEAMLESS STEEL TUBING  
AS PER MIL-T-6736 OR AMS 6371/6360/6361  
6362/6373/6374

recu 47.833  
Sp/6-12-16.

**Line Total:** \$240.00

4	M6061T6TS1.000W.065	6061T6 SQ TUBE 1.00 x 1.00 X 0.065w ROUNDED CORNERS		12/8/2016	12.00	\$9.80	\$117.60
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Yes

12/8/2016

MATERIAL: 6061-T6 OR 6061-T651/T6510/T6511/T62  
SQUARE TUBING PER AMS-QQ-A-225/8 OR AMS 4117/  
4128/4115/4116 OR PER AMS-QQ-A200/8 OR AMS 4160

**Line Total:** \$117.60

**Note:**

11/30/2016



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## PURCHASE ORDER

Purchase Order ID **PO34484**

Purchase Order Date 11/30/2016

PO Print Date 11/30/2016

Page Number 3 of 5

**Order From :**

VU-TWM001

TW METALS  
PO BOX 933014  
ALTANTA, GA 31193-3014  
US

**Ship To :** DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 585 768 5600

**Ship To Contact**

**Ship To Phone**

**Ship Via:** YRC COLLECT

**Ship Acct:**

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #** 10127-2607

**Terms** Net 30

**Currency** USD

**FOB** FCA - (Free Carrier)

5	M6061T6T0.3125W.058	ALUM TUBE .3125 x .058w	12/8/2016	40.00	\$2.50	\$100.00
			Yes	f		
			12/8/2016			

MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING  
AS PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8 OR  
AMS 4080 OR AMS 4082 OR AMS 4083 OR ASTM B210 OR  
ASTM B241

**Line Total:** \$100.00

6	M6061T6T0.375W.058	6061-T6 RD Tube .375 x.058W	12/8/2016	60.00	\$2.15	\$129.00
			Yes	f		
			12/8/2016			

MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING  
AS PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8 OR  
AMS 4080 OR AMS 4082 OR AMS 4083 OR ASTM B210 OR  
ASTM B241

**Line Total:** \$129.00

**Note:**

11/30/2016



Dart Aerospace Ltd.  
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Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO34484**

Purchase Order Date 11/30/2016

PO Print Date 11/30/2016

Page Number 4 of 5

**Order From :**

VU-TWM001

TW METALS  
PO BOX 933014  
ALTANTA, GA 31193-3014  
US

**Ship To :** DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 585 768 5600

**Ship To Contact**

**Ship To Phone**

**Ship Via:** YRC COLLECT

**Ship Acct:**

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #** 10127-2607

**Terms**

Net 30

**Currency**

USD

**FOB**

FCA - (Free Carrier)

7	M6061T6T0.500W.058	6061-T6 RD Tube .500 x.058W	12/8/2016	120.00	\$1.75	\$210.00
			Yes 12/8/2016	f		

MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING  
AS PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8 OR  
AMS 4080 OR AMS 4082 OR AMS 4083 OR ASTM B210 OR  
ASTM B241

**Line Total:** \$210.00

8	M6061T6T0.625W.065	6061-T6 RD Tube .625 x.065W	12/8/2016	40.00	\$3.15	\$126.00
			Yes 12/8/2016	f		

MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING  
AS PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8 OR  
AMS 4080 OR AMS 4082 OR AMS 4083 OR ASTM B210 OR  
ASTM B241

**Line Total:** \$126.00

**Note:**

11/30/2016

SP 16-12-6

Recu 36F



Dart Aerospace Ltd.  
1270 Aberdeen Street  
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Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO34484**

Purchase Order Date 11/30/2016

PO Print Date 11/30/2016

Page Number 5 of 5

**Order From :**

VU-TWM001

**Ship To :** DART AEROSPACE LTD

TW METALS  
PO BOX 933014  
ALTANTA, GA 31193-3014  
US

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 585 768 5600

**Ship To Contact**

**Ship To Phone**

**Ship Via:** YRC COLLECT

**Ship Acct:**

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #** 10127-2607

**Terms**

Net 30

**Currency**

USD

**FOB**

FCA - (Free Carrier)

9	71401-45	PROCUREMENT QUALITY CLAUSES	12/8/2016	1.00	\$0.00	\$0.00
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No

Procurement Quality Clauses

12/8/2016

A005 right of entry

A012 chemical and physical test report

A016 personnel qualification

A017 raw material identification (as applicable)

A026 certification of material conformance

A041 quality management system

A042 dart notification by supplier

A043 retention of quality documents

**Line Total:** \$0.00

**PO Total:** \$1,128.60

Note: Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Change Nbr: 1

Change Date: 11/30/2016